3.0 DISASSEMBLY/ASSEMBLY

3.1 GENERAL

This section contains a sequential step-by-step description of the disassembly/assembly of the InfusO.R. Pump. Contact Baxter Healthcare Corporation technical service if you have any questions while servicing the InfusO.R. Pump.

CAUTION: When performing the following procedures, exercise caution during disassembly to protect the PC boards from stray static discharge. The inspection or repair bench, all equipment, and personnel should be grounded.

NOTE: During disassembly, note orientation and routing of all cables and connectors. Failure to do so may result in improper operation upon reassembly.

NOTE: All pumps must pass the Functional Test found in Section 6.0 after repair is completed.

3.2 DISASSEMBLY/ASSEMBLY SEQUENCE

Disassembly is identified by the steps listed below. Steps to complete subassembly/component removal must be followed in sequential order.

To reassemble, reverse procedures unless otherwise stated.

STEP	PRIOR STEPS TO COMPLETE
1. Rear Case Half Assembly	-
2. Syringe Holder	-
3. Mechanism Assembly	1
4. Reed Switch Assembly	1,3
5. MPU/Mechanism Circuit Board	1,3
6. Motor Assembly	1,3,4
7. Syringe Block	1,2,3,5
8. Pusher Block Assembly	1,2,3,5,7
9. Guide Rod	1,2,3,4,5,7,8
10. Front Case Half Assembly	1,3
11. Switchboard	1,3,10
12. Front Cover/Hall Effect Assembly	1,3,10,11
13. LCD Assembly	1,3,10,11

3.3 DISASSEMBLY/ASSEMBLY INSTRUCTIONS

1. Rear Case Half Assembly (Figure 3-1)
   - A. Lay pump face down on clean work area.
   - B. Remove (2) screws from pole clamp mounting bracket.
   - C. Remove (4) rear case half screws.
   - D. Separate rear case half from front case half by gently pulling apart.

2. Syringe Holder (Figure 3-1)
   - A. Remove syringe loading label.
   - B. Remove (2) screws securing holder to end block and remove.

3. Mechanism Assembly (Figure 3-2)
   - A. Remove J1 ribbon cable and J4 2 pin cable from MPU board.
   - B. Lift up on mechanism, guide cables J1 and J4 through mechanism assembly.

4. Reed Switch Assembly (Figure 3-2)
   - A. Remove connector at J5 on MPU board.
   - B. Remove (2) screws securing reed switch assembly to motor pillow block and remove.

5. MPU Board (Figure 3-2)
   - A. Remove all cable connections to MPU board.
   - B. Remove (2) screws securing board to middle pillow block.
   - C. Slide MPU board off of alignment pin.

6. Motor Assembly (Figure 3-2, 3-7)
   - A. Remove (3) screws securing motor to motor pillow block.
   - B. Remove black and red wires from 8 pin connector.

7. Syringe Block (Figure 3-3)
   - A. Loosen preload and limit collar cap screws.
   - B. Carefully slide syringe block, collars and preload spring off guide rods. (Use caution as preload spring is under tension).
   - C. Refer to Section 3.4 for mechanism reassembly.

8. Pusher Block Assembly (Figure 3-2, 3-4)
   - A. With 7/16" open end wrench and 7/16" nut driver remove threaded bushing from leadscrew.
   - B. Loosen (2) screws on top of middle pillow block.
   - C. Carefully slide middle pillow block off guide rods.
   - D. Remove pusher block.
   - E. Refer to Section 3.4 for mechanism reassembly.

9. Guide Rod (Figure 3-2)
   - A. Loosen set screws on motor pillow block.
   - B. Gently tap motor pillow block off guide rods.
   - C. Refer to Section 3.4 for mechanism reassembly.

10. Front Case Half Assembly (Figure 3-5)
    - A. Remove (4) screws from inside of front case half.
    - B. Lift up tape strip and slide cable through hole in front case.

11. Switchboard (Figure 3-5, 3-6)
    - A. Remove knob labels.
    - B. Remove set screws and knobs.
    - C. Remove (5) screws securing switchboard to the switch plate.
    - D. Gently pull switchboard free of case cover (switchboard may adhere to front label initially).

12. Front Cover/Hall Effect Assembly (Figure 3-8)
    - A. Using a small screwdriver, pry the hot melt adhesive from the hall effect board.
    - B. Desolder the 6 wires from the hall effect board.
    - C. Remove (2) nuts securing syringe selector switch.

13. LCD Assembly (Figure 3-9)
    - A. Desolder the 9 wires from the switchboard.

3.4 MECHANISM REASSEMBLY (Refer to Figures 3-3, 3-4, 3-10, 3-11)

- A. Insert guide rods into motor pillow block so the end of the guide rods are flush with the face of the motor pillow block.
- B. Tighten the motor pillow block set screws.
- C. Install leadscrew assembly through motor pillow block.
- D. Slide pusher block assembly onto guide rods. Position pusher block assembly up against the motor pillow block.
- E. Install middle pillow block on guide rods. Slide it along guide rods until it is flush with the end of the leadscrew. Insert a screwdriver into the middle pillow block slot if it is difficult to slide along the guide rods.
- F. Install the threaded bushing loosely onto the leadscrew.
- G. Use a nut driver to adjust position of the middle pillow block so that the distance from the inside edge of the middle pillow block to the outside edge of the motor pillow block is 6.75".
- H. While holding the threaded bushing stationary with nut driver, use open end wrench to tighten jam nut. Assure that the leadscrew turns freely with no binding or excessive play.
- I. Place assembly into rear case and assure that the two pillow blocks fit within the locators molded into the case.
- J. Remove assembly from rear case.
- K. Tighten screws on the middle pillow block.
- L. If not already attached, install motor to motor pillow block. Check that there is no binding between the motor and leadscrew gears. If necessary loosen and retighten motor screws.
- M. Place syringe block and limit collar onto guide rods. Slide preload spring 3/4 of the way onto guide rod.
- N. Using needlenose pliers, grasp preload collar (leave space at tip of pliers for end of spring).
- O. Push preload spring and preload collar completely onto guide rod.
- P. Adjust syringe block as outlined in Section 3.5.

3.5 SYRINGE BLOCK ALIGNMENT (Refer to Figures 3-3, 3-12)

3.5.1 Syringe Block Alignment

A. Insert a .030 gauge between the syringe block and the outside surface of the threaded bushing.
B. Tighten the preload collar cap screw.
C. Verify the .030 distance between the syringe block and threaded bushing.
D. Bend the switch arm until it just touches the syringe block actuator.

3.5.2 Limit Distance Calibration

A. Insert a .038 gauge between the limit collar and the syringe block.
B. Slide the limit collar against the gauge and tighten the limit collar cap screw.
C. Verify the .038 distance between the limit collar and the syringe block.

3.5.3 Syringe Block Stroke Adjustment

A. Holding the mechanism assembly firmly, pull back the syringe block toward the occlusion microswitch.
B. Install a .014 gauge between the preload collar and the syringe block, then release the syringe block.
C. Using an ohmmeter measure between the two outside terminals of the microswitch.
D. Check the meter reading for a "closed" condition. This is the normal operating position.
E. If the circuit reads "open," bend the switch arm using needlenose pliers slightly away from the syringe block actuator until a "closed" circuit is obtained.
F. Remove the .014 gauge and install a .023 gauge in its place.
G. Using an ohmmeter measure between the two outside terminals of the microswitch.
H. Check the meter reading for an "open" condition. This is the occlusion activation position.
I. If the circuit reads "closed," bend the switch arm using needlenose pliers slightly tighter to the syringe block actuator until an "open" circuit is obtained.
J. Return to Step A, and repeat this procedure completely until no further adjustments are required.

3.6 END OF SYRINGE ADJUSTMENT (Refer to Figure 3-13)

A. Adjust the plunger of a 60 cc syringe so that it lines up with the 5 mL division and install in the pump. Insure the syringe flange is properly seated in the syringe holder.

B. Pull up on the pusher block release lever and engage it onto the syringe plunger.

C. Initiate an infusion and allow the pump to run until it alarms EOS. This will be indicated by an audible alarm, flashing red LED and EOS flashing on the display.

D. Verify the syringe reads approximately 1 mL. If not, make adjustment as outlined in step E or F as appropriate.

E. If the alarm sounded too early, loosen the nut closest to the plunger screw head and tighten the other nut. This will move the plunger screw away from the EOS switch.

F. If the alarm sounded too late, loosen the nut closest to the halfnut and tighten the other nut. This will move the plunger screw closer to the EOS switch.

G. Return to step A and repeat this procedure until no further adjustment is required.

H. A drop of Loctite [2] thread lock # 425 should be added to the adjustment plunger nuts of the plunger screw once the plunger screw has been adjusted and properly verified.

[2] Loctite Corporation

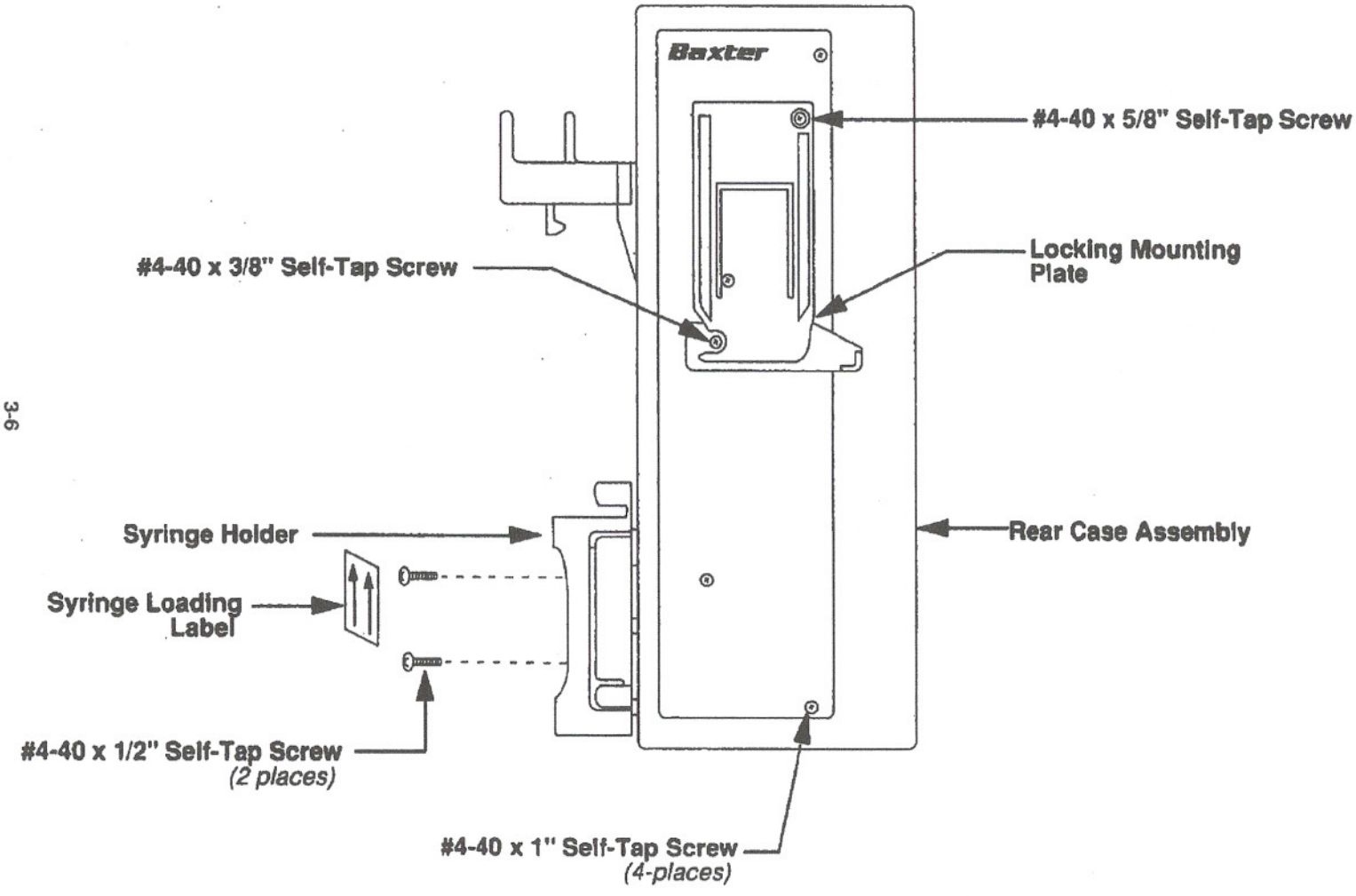
Baxter
#4-40 x 5/8" Self-Tap Screw
Locking Mounting Plate
#4-40 x 3/8" Self-Tap Screw
Rear Case Assembly
Syringe Holder
Syringe Loading Label
#4-40 x 1/2" Self-Tap Screw
(2 places)
#4-40 x 1" Self-Tap Screw
(4-places)

FIGURE 3-1

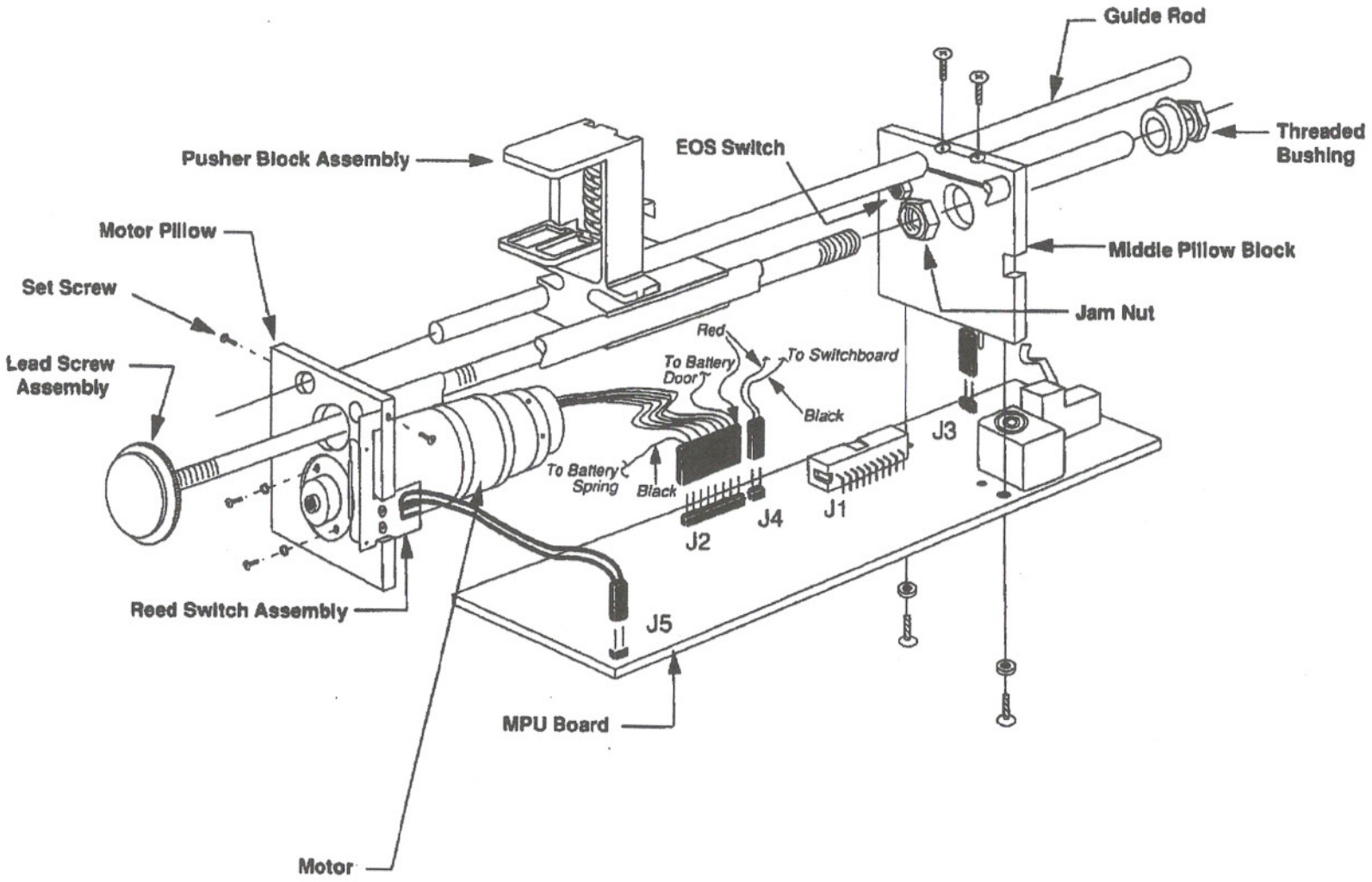
Guide Rod
Threaded Bushing
Pusher Block Assembly
EOS Switch
Motor Pillow
Middle Pillow Block
Set Screw
Jam Nut
Lead Screw Assembly
Red
To Battery Door
To Switchboard
Black
J3
To Battery Spring
Black
J4
J1
J2
J5
Reed Switch Assembly
MPU Board
Motor

FIGURE 3-2

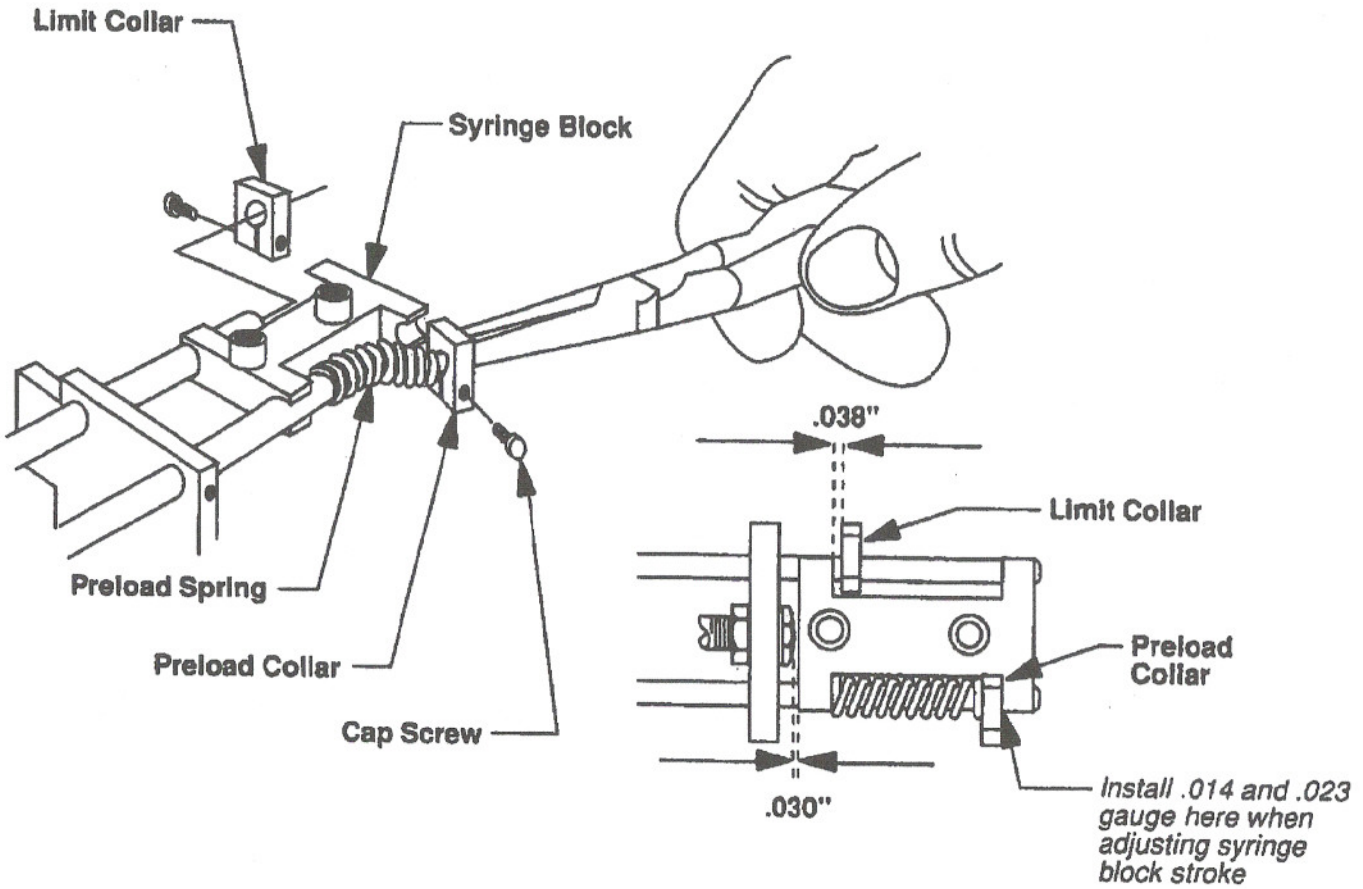

FIGURE 3-3

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